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# Transforming the firm for the digital era: An organizational effort towards an E-culture

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**Abstract.** This paper analyses a successful cultural change experience within a large organization, *Telefonica Group*, a firm with a staff of over 148 000 people and whose volume of customers worldwide overcomes one hundred million, which allows it to maintain a clear leadership position in the Spanish-speaking telecommunications sector. *Telefonica* has passed from an informatic culture to an informational culture and is currently consolidating an E-culture that will enable it to become a true E-company.

With the aim of keeping its leadership position, *Telefonica* designed *Programa Lider.es* (Leader Program.es), the main objective of which was the evolution of its business model towards E-business, a transformation that would make it possible to take advantage of the possibilities offered by new technologies and the Internet and create value by participating in businesses related to the digital era. The implementation of this program was not easy. This paper analyses the pillars that underpinned the whole process, the organizational support structure that was created with this purpose and the different stages the process went through. Finally, a summary of the positive points detected, the mistakes made and the lessons learnt is provided at the end of the paper.

Keywords: Organizational change, E-culture, telecommunications firms, case study

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## 1. Introduction: The cultural needs for an E-business

New technologies obviously affect and are affected by businesses. Besides, the attitude towards those technologies will be essential for firms' success. From this point of view, the notion of "organizational culture" as a general term describing "how things are done in a corporation" is linked to that of Information Systems, as it explains how people behave in the face of the IS.

Thus, as far as the people who form part of an IS are concerned, an organization's culture will influence and be influenced by both users (who generate the system input and/or use the output) and technicians (including the operators in charge of feeding data into the computer and/or monitoring its correct operation; system analysts, who are responsible for the logical design of such systems, and programmers, who create the computer software). If they are members of the corporation or are directly related to it, they are also part of the organizational culture or "cultural implicates" [1]. Therefore, none of them can be excluded when analysing the organizational behaviour in relation to Information Technology. Besides [2], the same IS may have different meanings for different people, such as system analysts and users. This is so because their points of view concerning these systems will probably not be the same.

Actually, when the organizational culture is in agreement with the IT/IS, this has advantages like the following:

1. It allows us to know whether IT/IS implementation will be satisfactorily accepted [3–5].
2. It lays down patterns for information usage [6]. Thus, it helps identify which information is relevant, where it may be obtained and, above all, to whom it must be supplied [7].
3. It is an important communication medium, both inside and outside the firm [8] and allows us to assess the effectiveness of the IT applied to telecommunications [9,10].
4. It creates cohesion among the members of a firm, as it explains "the way things are done in a firm" [11–13].
5. It allows the creation of a social control system within a firm. For instance, the implementation of an IS and the correct predisposition of corporate members towards such an IS are hardly controlled merely by means of formal measures. Cultural rules also play a very important role in this respect [14,15].
6. It may help increase satisfaction levels among all the internal collaborators of the firm, for it facilitates environmental adaptation and internal integration, thus reducing the anxiety created by the IS/IT [16].

Once we have outlined these ideas, we can now look at the characteristics that define an informatic culture and an informational one. An informatic culture can only envisage the need to make tactical or short-term decisions in the IT area; therefore, its values lie in separating that technology both from the firm's strategic planning and from IS generating strategic decisions. Other features of this culture include the fact that the improvements created by IT are always measured in quantitative terms; the informatics department is seen as a cost centre. Since according to this approach, IT is a short-term concept, no investment plans exist in this area. This is why firms may make mistakes when purchasing equipment, miscalculate the cost/profit ratio or end up spending more and earning less than expected [17].

As a result of what we have just described, IT implementation within the firm is only carried out by technical personnel, users are disregarded and the senior management does not become involved in its development. Everything is left to the informatics department and operations managers. This is clearly illustrated by the phrase "IT-specialists culture" [18].

Compared to an informatic culture, an informational culture goes much further, for it understands IS usefulness at strategic and tactical decisions (in the short, medium and long term). Besides, within these corporate values, the IT/IS is measured quantitatively (financial cost/profit ratio), but also qualitatively (usefulness for all members of the firm). The informatics department is seen not only as a cost centre, but also as a profit-creating one. Of course, since there is also a long-term view, the IS also requires an investment plan.

As a consequence of all this, it becomes clear that we are not dealing with two opposed cultures; what happens is that the informational culture represents a more advanced position than the informatic culture. In fact, the former includes the latter and goes beyond it, in order to better profit from IT through a useful IS that is valued and accepted by an organization. Training plays a crucial role in this IS, not only for technicians, but also for users.

What is more, we can actually take another significant step forward by considering a special type of informational culture, namely E-culture. In this respect, we believe that the so-called E-culture is noth-

ing but the expression of an informational culture oriented towards the transformation of the firm into an E-business. Along these lines [19], the digital transformation occurs within many different economic sectors and kinds of businesses, every organization must face the "E-culture challenge" in order to be prepared for the introduction of an E-based set of internal processes and external relationships. E-business is not a technology-driven challenge but a people-centered challenge [20].

Furthermore, we think that, in general and without considering exclusively the IS/IT, E-culture is the ultimate response within a series of cultural transformations. Therefore, the first thing we must do is situate the bureaucratic culture which has been called "culture of conformity" [21], "culture of technical rationality" [22], "culture of control" [23], or "culture of process" [24]. Summarising, this bureaucratic trend's generic features are: (1) The management style is authoritarian, and there is a high control level. (2) There is little communication, and the management is usually a univocal, top-down one. (3) Individuals search for stability, have a limited scope for initiative, and are oriented towards obeying orders. (4) The decision-making process follows a repetitive, centralised pattern. (5) There is reluctance to start innovative processes. (6) High conformity levels exist. (7) These beliefs clearly hinder change.

Firms have later sought a quality-based culture through systems like TQM. The relationship between TQM and culture is so evident that TQM as the culture of an organization committed to customer satisfaction through continuous improvement [25]. From this perspective, what makes TQM different from other management processes is its strong focus on continuous improvement [26]. This is why we claim that a cultural transformation from a set of bureaucratic postulates towards a TQM culture must be carried out through a long-term strategy, clearly formulated and implemented, in such a way that the change is achieved within an evolutionary process, and not within a revolutionary one. This is so because we are dealing with both individual and organizational behaviours, with all the opposition that a change of this nature tends to generate. Following this line of thought, the literature claims that the basis for the success of TQM programmes lies in analysing the culture and orienting it towards these aims [27–33].

As a logical evolution in their attempts to give responses related to firms' internal and external customers through the use of IS/IT-related tools like B2E (Business to Employees) or B2C (Business to Customers), firms must develop their quality-oriented culture even more. Thus, for example [34], B2E enables people to interact along lines of work rather than along lines of command, which undoubtedly represents a significant change in the way of working. In short, it is simply a question of developing E-learning and E-business through E-culture. From all that has been said above, it can be inferred that E-culture has a twofold genesis (one coming from a bureaucratic culture to a quality culture and the other coming from an informatic culture to an informational culture).

Trying to understand the essence of E-culture more deeply, we can say that in order to take full advantage of the potential E-business has in store, a company's leaders must lead differently, and people must work together differently [35]. This new way of working is E-culture, the human side of the global information era.

Through an E-culture survey carried out at 785 companies operating in the E-world [36], we can describe the characteristics of these firms:

1. Internal changes are considered a way of life, and people seem to take them in stride.
2. Conflict is seen as creative and as something to be encouraged.
3. Ideas that are unusual, controversial, or "different", are strongly encouraged and welcomed.
4. When the organization is considering a major strategic change, most people generally hear about it in advance, so they have a chance to comment upon it.

Regarding the implementation of an E-culture, it is logical to think that the speed and easiness of the process is largely going to depend on the firm's background itself as well as on its activity and current culture. In this respect, the so-called *dotcoms* have already been born with their own demands linked to E-culture. These demands are different from those in *wannadot* firms or in those belonging to more traditional sectors that want to approach the digital era. In this line of thought [37], E-cultures in Information Age organizations will have power and influence structures vastly different from those developed in Industrial Age bureaucracies.

Talking about how this change towards E-culture should be carried out, some authors refer to certain aspects it is wise to consider in order to complete these transformations. Thus [38], actions should be undertaken in connection with different factors, namely:

common theme, shared vision; rewards and recognition; measures, milestones, and feedback; policy, procedures, systems alignment; communications, best practice exchange; quick wins and local innovations; champions and sponsors; education, training, action tools; guidance structure and process; symbols and signals.

As can be seen, there is a large number of aspects in relation to which initiatives must be undertaken. However, this is not surprising, we must bear in mind that a cultural change is a complex matter, even more when it is an E-culture that we are trying to implement, in which [39], the changes affecting the organizational culture in a digital world are based on the importance of continuous change.

In parallel, and more specifically [40], the steps necessary to make a company evolve towards an E-culture: (1) Encouraging people to share information. (2) Recognizing that E-business is an inside-out proposition. (3) Remembering that education and training are critical. (4) Instilling a sense of urgency in people. (5) Admitting that the Internet and the realities of E-business have permanently changed barriers to competition.

From another point of view [41], some guidelines for the creation of an E-culture are: (1) Being cautious in evaluating strategic models and scenarios. (2) Surveying employees to gauge their opinions and encourage differences in thinking about E-business. (3) Formulating a temporary model and creating a team. (4) Identifying E-initiatives that can be set up within three to four months. (5) Appointing E-business directors. (6) Ensuring that these E-business directors are seen as an integral part of the business. This is of critical importance. (7) Announcing with appropriate fanfare. (8) Working to enrich relationships.

All the above-mentioned guidelines give us positive impressions about the feasibility of starting a change in organizational values that can lead to E-culture. Nevertheless, since culture is the same for the firm as personality is for the individual (that is, an essential part of their own nature), we think that the case study methodology will be very enriching so as to really understand and take advantage of these processes. This is why this paper has as its aim to show a successful E-culture implementation experience in a large firm. The firm in question is *Telefonica Group*, which has gone through the different stages described in this section. It has gone from a bureaucratic culture to a quality culture, and from an informatic culture to an informational culture; and is currently consolidating the E-culture foundations that will allow it to become an E-company.

## 2. *Telefonica's Programa Líder* (leader program)

When we talk about *Telefonica Group*, we are referring to a global telecommunications, multimedia and Internet operator that exploits basic telephone service in several countries as well as to a number of companies dedicated to business activities associated with telecommunications. At the beginning of 2004, its staff exceeded the figure of 148 000 people (about 58 000 in Spain). At present, it is the most important value in Madrid's Stock Exchange and stands on the markets of New York, Tokyo, Paris and London. Its volume of clients overcomes more than one hundred million, more than half of them in South America. *Telefonica*'s operations are distributed along 10 lines of activity: *Telefonica de España, Telefonica Móviles, Telefonica Data, Telefonica Media, Telefonica Latinoamericana, TPI, Terra Networks, Atento, Energia, and Telefonica B2B*.

It currently maintains a clear leadership position in Spain's telecommunications sector and has equally consolidated its presence abroad. However, *Telefonica* has gone a long way before reaching this leadership position, facing numerous transformations in its business environment and undertaking significant reforms in its internal management, particularly in the last fifteen years.

The most far-reaching transformation the majority of telecommunications firms in numerous countries have had to carry out during the last ten years was having to stop working under monopoly conditions in order to become competitive firms [42].

With the aim of being able to face up to the growing competitiveness, *Telefonica* gradually abandoned a markedly bureaucratic, paternalist culture, adopting another more client- and quality-oriented culture instead. The present challenge is even greater, if such a thing is possible: the same as all firms in the telecommunications sector, it must face up to the forces conditioning its survival: the permanent technological innovation processes and the emergence of new communication models, along with an increasingly developed competitiveness. Despite the great pressures that derive from the above-mentioned challenges, or perhaps thanks to them, firms in the telecommunications sector have come to be among the fastest-growing groups.

*Programa Lider.es* was the response of *Telefonica de España* – the most important firm within *Telefonica* – to the new demands raised by this competitive environment. This ambitious program, which started to be designed in the year 2000, had as its aim to implement

the actions necessary to achieve success and maintain the leadership position within an environment that required an effort of fast transformation, for both competitiveness and Internet-impact purposes.

This transformation project was based on three action axes: innovation, efficiency and quality, which materialised in their corresponding *Programas Estratégicos de Cambio or PEC* (Strategic Schemes for Change). This is how *PEC Verne* (installing 1 million ADSL lines by 2003), *PEC Efficient.es* (ongoing initiatives to reduce operating costs by 5% in 2004 with respect to 2000), and *PEC Excelent.es* (focusing on customer satisfaction and loyalty achieving as well as excellence in quality) were born. Apart from these, the project was underpinned by two more action axes, *Idealab* and *Mi Telefonica.es*, which provided further support by seeking to create a high-performance organization in which all employees could get involved. Finally, there was a sixth axis, *PEC E-company*, whose role was to invigorate the five previous axes and which we are going to study in depth in this paper.

*PEC E-company*'s central purpose is to improve the exchange of goods, services, information and knowledge through the use of net technology. It was not only a question of adding new technology to old processes. The basic precepts it started from were: self-service (easiness, flexibility and adaptation to the customer), transparency (process visibility) and speed (integration of applications and outsourcing).

Regarding *Idealab* and *Mi Telefonica.es,* their aim was, as said above, to achieve the involvement of all employees and provide a satisfactory atmosphere for their job performance; in other words, to ensure the whole organization's commitment.

More specifically, *Idealab* sought to encourage the generation, on the part of employees, of ideas for quality improvement, innovation and efficiency, a task in which the staff's knowledge and talent definitely had to be exploited. With this aim, the necessary mechanisms were established that could guarantee the execution and implementation of those ideas that generated added value for the company.

*Mi telefonica.es* tried to collect the real opinions of *Telefonica de España*'s executives about all the critical aspects that determined their levels of motivation and predisposition to perform well in their jobs. 1600 executives took part in this project, from the executive president to the supervisor level. It was based on a tool, available through the Intranet, which, by means of a 260-item questionnaire, collected the executives' opinion on aspects related to their objectives, professional relationships, professional development and rewards.

## 3. The project of transformation into the new *E-telefonica*

As we have already explained, one of the main objectives of *Programa Lider.es* was the transformation of *Telefonica*'s business model, orienting it towards *E-business*. From the top management's point of view, it was clear that the *E-business* strategy had to be facilitated, managed and implemented throughout the organization, spreading Internet culture in all areas and ensuring the correct development of projects as the materialisation of the firm's evolution in the digital world.

This was a two-dimension objective: (A) The transformation of the existing business model taking advantage of new technologies and the Internet. The elements on which this change would presumably be based are presented in Table 1. (B) Value-creation through the participation in the new businesses associated with the Internet world. The elements it would be based on were: platform services, service integration and the participation on B2B, B2C and C2C intermediation businesses.

This desire for transformation materialised in a collaboration agreement with the North American firm *Cisco Systems*. The objective sought was to turn *Telefonica* into an *E-company*, a leader in its markets, by

Table 1
The transformation of Telefonica's business model

| | Telefonica | E-Telefonica | |
|---|---|---|---|
| Relationships with customers | Product catalogue<br>Basic information on turnover | On-line channel as the primary way for relationships with a considerable number of B2C customers | Customers' portal |
| Internal relationships | Several Intranets with different use levels | Replacement of internal processes by on-line B2E and E2E processes | Employees' portal |
| External relationships | Institutional relationships through *Telefonica's* home page | Integration with suppliers and distributors and of these two groups with B2B customers | Suppliers' portal |

Table 2
Recommendations about the pillars of the Net Ready methodology

| | |
|---|---|
| Leadership | • Achieving the top management's leadership and active involvement throughout the process.<br>• Fostering projects with short delivery periods (3–6 months) while a medium-term approach was developed for the *E-business* project (1–2 years), integrated into the firm's overall strategy.<br>• Creating a communication plan for the transmission of *E-culture* to the whole organization. Encouraging participation.<br>• Including metrics associated with the success of *E-business* projects in the executives' objectives and incentives. |
| Operating model | • Defining and implementing a financing model suited to the characteristics of *E-business* initiatives.<br>• Defining and implementing a balanced set of metrics to analyse the evolution of the *E-business* strategy and measure project progress levels.<br>• Defining an organizational structure on a corporate level in order to coordinate and promote global projects on a group level and facilitating the detection of synergies in activity lines (*E-leaders*, *E-champions*, etc.). |
| Technology | • Defining the web infrastructures needed to support the *E-business* project: web foundation.<br>• Focusing on standard-type, easily scalable solutions.<br>• Identifying the resources available in the organization for undertaking *E-business* initiatives (consultants, programmers, software, etc.).<br>• Creating an *E-business* competence centre that should act as a technological observatory and as an advisory board in matters related to activity lines. |
| Capacities | • Globally managing people with potential and projection at all organizational levels.<br>• Consolidating the existing alliances so as to develop new relationships with firms at hand in the value chain (for example, solution providers, contractors, etc.).<br>• Encouraging the creation of fast-action teams for the undertaking of *E-business* projects. |

re-designing the company's relationships with its customers, its suppliers, and its employees, an effort in which the potential of new technologies and the Internet had to be fully exploited.

By then, *Cisco Systems* had already developed a methodology for the transformation into an *E-business*, the so-called *Net Ready*, the use of which was promoted all over the world through strategic alliances with firms that enjoyed a leadership position in their respective markets.

One of the first steps consisted in defining and adapting the *Net Ready* methodology to the peculiarities and circumstances of *Telefonica*. As is now recognised by everybody, this work was crucial for the success in the implementation of the change, as it created a common language, established specific methodological stages (each one of them with their activities and deliverables), and also contributed to a new definition of roles within the organization.

The methodology applied by *Cisco Systems* defined four basic pillars on which the firm had to work in order to succeed in the transformation of a firm: leadership, operating model, technology and capacities.

In relation to the first pillar – leadership – all organization members, from the top management to low-level workers, started to be encouraged to think in terms of *E-Conomy,* to use electronic commerce tools, and to fix and orient each person's responsibilities towards clearly measurable objectives.

The second pillar – operating model – had to do with the need to create a set of rules and procedures that could decide which field to look at. Without a good model, there was a very high risk of wasting time, people and money. The idea was that the structure must be used to guide human resources, not to control them. Business in the Internet world might seem anarchic, but it became evident that successful firms channelled their energies in a very careful way.

As for technology, they clearly understood that it did not have to be seen as an objective in itself, but as a way to succeed in doing something, in acquiring new capacities. Everybody assumed that the technology available at that time was not as important as the skill in replacing the recently-acquired tools to meet change and scale needs. Technology should not only be an IT department function; instead, IT department people had to understand the elements related to commerce and business. Not only that, employees in commercial and financial areas had to understand technological elements too. The essential thing was to set up a debate coordinated by a strong business leader that could receive ideas from technicians, but without neglecting such areas as prices and value creation for both the business and the customers.

The fourth pillar – capacities – referred to the need for executives to acquire knowledge about the complexity and changes generated around *E-business*. Executives had to be able to simultaneously analyse the

Table 3
Support organization for the transformation process

| | Comite E-business | E-Champions |
|---|---|---|
| Tasks | Promoting, facilitating, managing and executing the whole E-business strategy, spreading Internet culture throughout the firm and ensuring the correct development of projects as the materialisation of the organization's evolution in the digital world. | Identifying, planning and guaranteeing the successful development of the projects approved at each one of its Offices by the *Comité E-business* oriented to the optimisation of business processes through the use of Internet technology. |
| Functions | 1. Leading the transformation process in every activity line. | 1. Detecting opportunities for any project in their competence area. |
| | 2. Identifying opportunities and defining the program's framework. | 2. Managing to find resources for project completion in their competence area. |
| | 3. Approving and allocating resources according to technical, economic and business viability. | 3. Acting as Program owners, thus being ultimately responsible for the success or failure of the assigned program. |
| | 4. Carrying out project follow-up: deliverable milestones, deadlines, budgets. | 4. Being in charge of change management in their competence area. |
| | 5. Managing change: Giving support in project communication matters and motivating participants. | |

influence exerted by numerous variables. This multitask capacity was seen as vital for success on the Internet.

From the experience accumulated during the implementation of this transformation methodology, the current *Telefonica de España* executives that are in charge of the process advised that a series of recommendations should be followed for each one of the previously-defined basic pillars presented in Table 2.

With the purpose of giving support to the whole transformation process and seeking to guarantee its success, a powerful administrative structure was designed within which a series of bodies and decision-makers were defined: *Grupo Corporativo E-business* – the E-business corporate group – , *Comité E-business* – E-business committee – and *E-champions*.

The first one to be created was *Grupo Corporativo E-business*, whose objective was to promote implementation in all *Telefonica* firms and manage the collaboration agreement with *Cisco Systems*. It was a flexible, small, agile group. Among its tasks and objectives stand out the following:

- Spreading and giving advice on the methodology between activity lines and assistance to firms' *E-business committees*.
- Publishing news and a communication plan about the transformation process.
- Organizing conferences, seminars, workshops and courses on *E-business.*
- Monitoring the stages of the transformation process.
- Performing the functions typical to a technological observatory.

A *Comité E-business* was created for each firm in the group as well as the figure of *E-Champions*, both of them being dependent on the *Grupo Corporativo E-business*. Table 3 shows the tasks and responsibilities assigned to *Comité E-business* and *E-champions*.

## 4. The implementation of the transformation process

The transformation process was structured in five stages, defining at the same time the tools to be used and the results to be delivered for the different collectives affected (Table 4).

### *4.1. Making known E-business advantages*

One of the first steps was the presentation of the program to firms' ruling boards, emphasising the need for a change towards *E-business*, the advantages in terms of cost saving and income growth and finally, the opportunities that would result from starting this transformation process. The figures corresponding to cost reduction and profit growth obtained by *Cisco Systems* thanks to *E-business* were provided as an example.

The management's leadership turned out to be fundamental during this advantage-spreading stage. Experience has shown that it is essential to take into account the following three aspects: (a) the urgent need to have the edge on the Internet; (b) making understand the need to transform the business models typically applied by firms; and (c) transmitting that this is not about *internetising* existing business models or copying others.

Table 4
The stages in the implementation process

| No. | Stage | Tools | Deliverables |
|---|---|---|---|
| 1 | Making known E-business advantages | Presenting committees | E-business statistics |
| | | Solutions | |
| 2 | Evaluating 'Ready for Internet' | Survey | 'Ready for Internet' index |
| | | Net Ready Diagnosis | Internet transformation initiatives |
| 3 | Specifying the catalogue of | Value matrix | E-business solutions catalogue |
| | projects and solutions | Web foundation analysis | Value matrix |
| | | | Infrastructure requirements |
| 4 | Prioritising projects | Prioritisation matrix | Map of E-business projects |
| 5 | Implementing projects | Web foundation analysis | Required infrastructure adjustments |
| | | Advisory committee | E-business solutions |

Table 5
Measuring scale for preparation level on the Internet

| | | | |
|---|---|---|---|
| Agnostic | Not fit to work with the Internet | 0–39 | |
| Aware | The top management wonders why *E-business* affects them | 40–79 | |
| Informed | The top management wonders about the best *E-business* strategy to follow | 80–119 | |
| Expert | The top management wonders about their optimal *E-business* project portfolio | 120–159 | Telefonica |
| Visionary | The top management wonders how to implement their project portfolio | 160–200 | |

### *4.2. Evaluating "Ready for Internet"*

The second stage of the process consisted in drawing up the *Net Ready* questionnaire. Its objective was to measure *Telefonica de España*'s preparation level with respect to the previously-defined four pillars of this methodology (leadership, operating model, technology and capacities). These are some examples of the questions formulated:

- Is it a priority for the top management to generate competitive advantages through the use of Internet technologies? (leadership).
- Are the roles, responsibilities, reporting levels and financing of E-business initiatives clearly defined? (operating model).
- Do we have technical competence to develop initiatives on the Internet? (technology).
- Can we easily form and dissolve strategic alliances? (capacities).

The survey was answered by 325 executives in all. The score obtained was 137 points out of a total of 200 that was the scale's maximum. This score qualified *Telefonica de España* as an organization sufficiently mature to embark on a project like this (Table 5).

### *4.3. Specifying the catalogue of solutions and projects*

The third stage consisted in elaborating a catalogue of *E-business* projects and possible solutions for their later approval by the *Comité E-business* of each firm in the group. Once they had been defined, each one of these projects was represented in a value matrix with the aim of classifying them according to their level of criticity for the business and the innovation or novelty they constituted. The objective of the value matrix was to draw a map with an overview of initiatives on the Internet, after which possible strategies could be suggested.

A matrix value was defined for each one of the areas in each firm. For example, Table 6 shows the matrix corresponding to *Telefonica de España*'s Customer Care Area.

Quadrant 1.9, *Operating Excellence,* included those projects that were essential for the business but not innovative. In this quadrant were grouped initiatives related to re-engineering, process improvement and supply chain optimisation. They were high-risk projects insofar as these projects were critical for the business.

Quadrant 9.9, *Innovative Strategies,* focused on strongly critical and innovative projects for the business. Actions in this quadrant emphasised processes that provided competitive advantages: focus on growth, new value creation and profit generation.

Quadrant 1.1, *Basic Functionality*, collected basic business operations that tended to be less critical and important and which, besides, were already being developed by numerous firms in the sector. In general, they were projects on which a small investment was

Table 6
Projects' Matrix Value. The case of the Customer Care Area

| - Criticity for the business + | | | |
|---|---|---|---|
| 9 | **Operating excellence** | **Innovative strategies** | |
| | E-security | Personalization | Language choice |
| | **Basic / additional functionality** | **Tests / experimentation** | |
| | Price-fixing tools | | |
| | Catalogue of products | Information on turnover | |
| | SLA Information | Inventory | |
| | Unified font end | Networks alarms | |
| | Receipt status | On-line configuration | |
| 1 | Order status | Recall button | |
| | 1 | 9 | |

**- Innovation / Novelty +**

made, but which provided low returns too. Initiatives in this quadrant did not represent an attempt to create new markets or redefine new business models but rather to reduce costs.

Quadrant 9.1, *Experimentation strategies*, gathered the projects focusing on aspects related to new products and market segments. These were generally non-critical, low-risk business actions. However, the objective sought was to make these projects be successful so that they could provide learning possibilities for the organization.

While the catalogue of solutions and projects was being elaborated, a web foundation analysis was carried out. The purpose of this was to define technological infrastructure needs and design a key element for project implementation success: the technology standards and the tools to be used. Thanks to these a priori definition of standards, they did not need to raise questions related to technologies and tools for each new *E-business* project. This meant saving a lot of efforts and permitted a quick implementation.

### *4.4. Prioritising solutions and projects*

After specifying the portfolio of projects, the next step was to prioritise them. Projects were situated in the so-called prioritisation matrix that classified them according to criteria of impact on the business and implementation easiness, giving rise to four types of projects: quick wins, ripe fruit, out of obligation, and bottomless sack (Table 7).

Table 7
Telefonica de España's project prioritisation matrix

| - Impact on the business | | |
|---|---|---|
| | "Out of obligation" | "Quick Wins" |
| | "Bottomless Sack" | "Ripe Fruit" |

**- Implementation easiness +**

Placing E-business initiatives in the project prioritisation matrix clearly showed which initiatives deserved to receive resources in first place. The most attractive candidates tended to be located in the top right quadrant (high impact on the business and great implementation easiness). Also those located in the bottom right quadrant (low impact on the business but easy to execute) were considered attractive. The projects sit-

Table 8
Value chain and time horizon of E-business projects

| Value chain | | | |
|---|---|---|---|
| | E-supply chain | Product catalogue | Performance report |
| | | Order status | Financial management |
| | | Receipt status | Receipt arrival |
| | | Opportunities | Network diagrams |
| | | | Contract management |
| | E-customer care | Order status | Turnover |
| | | Receipt status | Single log-on |
| | | Unified catalogue | Information on automatic |
| | | Alarms | line services |
| | E-marketing and | Secure transaction | Product catalogue |
| | E-sales | Safe access | Online payments |
| | | | Shipments and |
| | | | monitoring |
| | E-HR and | Web directory | Authorisation for project financing |
| | E-administration | Social benefits | Information on project |
| | | | financing |
| | | 3 | 6 |
| | | Duration in months | |

uated on left-hand quadrants were difficult to implement. This is why they were put on the back burner for future actions.

The projects that were finally chosen were represented in graphs with two dimensions: time horizon and implication in the value chain, as it appears in Table 8.

### *4.5. Implementing solutions and projects*

The last stage of the process focused on the implementation of projects as well as on their management. On May 19, 2000 the firm approved the immediate execution of 15 projects, out of a total of 30 projects that had been initially presented. These projects represented the first milestones in the organization's progress towards *E-culture.*

The projects chosen were developed by a team of three people, in a three-month period (Internet year) and with a maximum budget of 300 000 US dollars (3X3X3). The investment required for the whole set of projects amounted to 2.5 million euro. As a result, a net reduction of costs (variable plus fixed costs) of 4.4 million euro was achieved until the first quarter of 2001, and an increase in incomes of 6.3 million euro during the same period. The projects approved involved all the areas in *Telefonica de España* and are presented in Table 9.

Among all these projects, *E-domus* is the one that perhaps deserves to be highlighted for its notoriety. Its aim was to provide employees with an access gate to the digital world and with the only entrance way to a series of on-line self-services, tools and information necessary for their professional development and job performance. Likewise, it sought to encourage the habit of using web technologies and promote Internet culture among employees.

In its first version, functionalities located in different areas were developed, among them professional development, tools for business, personal work tools, corporate information, general information and job support.

It can currently be said that the *Comités E-business* in the different firms still quite regularly meet to analyse and manage the new initiatives that keep arising. As an example of these initiatives, *Telefonica de España* focuses its strategy on three action lines: *E-domus* (employees), *E-agora* (suppliers) and *Telefonica online* (customers). Furthermore, *Telefonica Móviles*, another firm in the group, materialises its projects in six initiatives: *Co-noce*, the institutional web, *Co-lavora*, the employees' portal, *Co-ordina,* the distributors' portal, *Co-opera*, the suppliers' portal, *Co-munica*, the customers' portal and *Co-mpra*, the virtual shop.

## 5. Conclusion: Some reflections based on recent experience

In relation to this effort to introduce E-culture, *Telefonica de España*'s executives admit that some things

Table 9
Initial list of E-business projects approved by Telefonica de España

**1-CCC WEB FOR BIG CUSTOMERS:** Customer Care Centre that, through web access points, permits registered users, customers and agents to consult information and deal with different matters.

**2 E-DOMUS V 1:** The only portal for employees with access to all the tools and information required for their job performance, with navigation design and unique look and feel.

**3 E-LIBRIS:** Full-text, daily updated documentation centre about the telecommunications sector in its varied aspects: technology, regulation, rates, analysts' studies, operators' annuals, internal analyses, etc., with a collection of over 16 000 works.

**4 SGIC APPLICATIVE MIGRATION TO ON-LINE CHANNEL:** The aim was to provide the *Sistema de Gestión Integral de Clientes* – Integral Customer Management System – with technological changes, platform stability and security that should permit its conception as an *E-business* solution aligned with the On-Line Channel environment.

**5 *GRIS* WEB.** It aimed to facilitate access through an Intranet to the *Gestor de Reclamaciones e Incidencias de los Sistemas (GRIS)* – Systems' Complaint and Incidence Manager – of the Infrastructure Department.

**6 PROCESS HOMOGENEISATION AND SPREAD:** The objective was to allow employees to have via-web access to the firm's processes with the aim of standardising working behaviours through the provision of an overall view of process to the whole organization.

**7 CONTRACT MANAGEMENT SYSTEM:** Application that supports comprehensive maintenance contracts and facilitates the evaluation of service levels in each subcontractor's action.

**8 CAMPAIGNS AND ADVERTISING WEB:** Compilation of ordered, classified information about adverts, mailshots, publicity on invoices, promotions, sale support material, brochures, press summaries, advertising-related information about competitors, etc.

**9 NEWS FOR THE SALES NETWORK:** Compilation of messages, news and instructions of interest for daily commercial action, well-organized and classified for their easy location by territories, segments, business lines, etc.

**10 SERVICE WEB FOR OPERATORS:** Web site for the development of the On-Line Channel for both national and international operators, providing bilingual information about the catalogue of wholesale products and services offered by *Telefonica de España*.

**11 INTERNET-ONLY COMMERCIAL OFFER:** It consists in the definition of an offer only available on the Internet that can strongly promote sales and support our customers' evolution towards on-line operations.

**12 WEB OF RATES AND SIMULATIONS OF COMPETITIVE SCENARIOS:** Web site that provides the database for rates and prices in the Spanish and international markets and allows the simulation of different economic scenarios.

**13 ON-LINE ATTENTION MODEL FOR FIRMS:** Its implementation will make it possible to solve problems related to customer attention in non-automated operations carried out through the On-Line Channel: consultations on products and services, sales and complaints through call centres and the "presential" sales network.

**14 M@IA** (*Módulo de Acceso a Internet Atlas* – Atlas Internet Access Module –)**:** It supplies real-time accurate information about any application filed by a customer and punctual access to the state of completion of works and solutions to incidences during the provision process.

**15–19 *IN WEB*:** Web server, with access via Intranet, restricted to the sales department, with up-to-date information about the area's sales and the fulfilment of objectives hierarchically classified up to salesmen level.

can be said to have gone well whereas others have not gone so well. Among the positive elements, we can mention the following:

- The conviction that there is a need to start the change towards the *E-business* model has spread to every level in the organization.
- The leaders of the change in each firm have been identified: *E-leader*, *E-kcp* (key contact person), *E-champion*.
- An own change management model has been consolidated through the creation of a common language.
- The initial impulse has been given to the process of cultural change in a large, complex and heterogeneous organization.

As for the lessons learnt during this process, the following are worth highlighting:

- Leadership has a key role throughout the transforming process, not only at the launching stage.
- The spreading stage is essential to encourage identification of opportunities and involvement at all organizational levels.
- The development of projects without having a web foundation is a clear source of inefficiency. On some occasions, technology is not "ripe" enough to undertake the most ambitious projects.
- It is difficult to adapt the current budget scheme (years) to the financing of Internet-related initiatives. The company must be able to detect opportunities and act quickly in front of them. Objectives must be established with a time scope of no more than three months. In this sense, it is convenient to adopt the version philosophy. We should not long for the perfect solution in one year, but rather find a good solution in one term and later develop more complex versions of it.

- It is necessary to count on sufficiently agile *E-business* project valuation models and to identify, from the very beginning, the metrics associated with those models.
- Efforts must be concentrated on customers and their training to use technology. The company must permanently focus on a strategy of value creation for the customer, considering that technology is a tool that can provide our customers with greater value, but only that, one tool.
- An additional spread, coordination and message-adaptation effort must be made in activity lines that are present in several countries.

If *Telefonica* made the effort of changing from a bureaucratic culture to a quality-based one ten years ago, at present, it is changing from an informatic culture to an informational one – in other words, to an E-culture – although they recognise that many opportunities still remain to be identified. Despite the enormous investing effort made so far and the significant progress in the transformation process towards *E-culture* within *Telefonica*, many of the most ambitious, innovative, higher-impact projects have admittedly not been identified yet or are still at an early stage of development.

## References


[1] O.A. El Sawy, Implementation by cultural infusion: An approach for managing the introduction of information technologies, *MIS Quarterly* **9**(2) (1985), 131–140.

[2] N. Pliskin, T. Romm, A.S. Lee and Y. Weber, Presumed versus actual organizational culture: Managerial implications for implementation of information systems, *The Computer Journal* **36**(2) (1993), 143–152.

[3] A. Hartman, J. Sifonis and J. Kandor, *Net Ready. Strategies for Success in the E-conomy*, McGraw-Hill, New York, 2000.

[4] G.R. Harper and D.R. Utley, Organizational culture and successful information technology implementation, *Engineering Management Journal* **13**(2) (2001), 11–15.

[5] C.P. Ruppel and S.J. Harrington, Sharing knowledge through Intranets: A study of organizational culture and Internet implementation, *IEEE Transactions on Professional Communication* **44**(1) (2001), 37–52.

[6] H. Itami and T.W. Roehl, *Mobilizing Invisible Assets*, Harvard University Press, Boston, 1987.

[7] S. Adler, Employee reactions to electronic performance monitoring: A consequence of organizational culture, *Journal of High Technology Management Research* **12**(2) (2001), 323–342.

[8] E.H. Schein, *Organizational culture and leadership*, 2nd edn, Jossey Bass, San Francisco, 1992.

[9] S. Kanungo, An empirical study of organizational culture and network-based computer use, *Computers in Human Behavior* **14**(1) (1998), 79–91.

[10] F. Elashmawi, Creating a winning corporate culture: Experience inside the Asian telecommunications industry, *European Business Review* **12**(3) (2000), 148–156.

[11] N.E. Chalofsky and C. Reinhart, *Effective Human Resource Development*, Jossey Bass, San Francisco, 1988.

[12] D. Lei, J.M. Slocum and R.W. Slater, Global strategy and reward systems: The key roles of management development and corporate culture, *Organizational Dynamics* **19**(2) (1990), 27–41.

[13] C. Comeau-Kirschner, Knowledge management: The sharing culture, *Management Review* **89**(1) (2000), 8.

[14] C. O'Reilly, Corporations, culture and commitment: Motivation and social control in organizations, *California Management Review* **31**(4) (1989), 9–25.

[15] B. Avey, Building a people-centered culture in a digital age environment, *The Canadian Manager* **24**(3) (1999), 24–27.

[16] P.R. Berthon, Psychological type and corporate culture: Relationship and dynamics, *Omega* **21**(3) (1993), 329–344.

[17] P.H. Mirvis, A.L. Sales and E.J. Hackett, The implementation and adoption of new technology in organizations: The impact on work, people and culture, *Human Resource Management* **30**(1) (1991), 113–134.

[18] R. Coombs, D. Knights and H.C. Willmott, Culture, control and competition; towards a conceptual framework for the study of information technology in organizations, *Organization Studies* **13**(1) (1992), 51–72.

[19] R. Coile, The E-culture challenge, *Russ Coile's Health Trends* **13**(7) (2001), 2–3.

[20] S. Sharma, Back to basics!: The link between organizational culture and E-business success, *Strategic Direction* **17**(10) (2001), 3–7.

[21] S.P. Feldman, Culture and conformity: An essay on individual adaptation in centralized bureaucracy, *Human Relations* **38**(4) (1985), 341–356.

[22] G.B. Adams and V.H. Ingersoll, Culture, technical rationality, and organizational culture, *American Review of Public Administration* **20**(4) (1990), 285–303.

[23] C. Ban, *How Do Public Managers Manage? Bureaucratic Constraints, Organizational Culture, and the Potential for Reform*, Jossey Bass, San Francisco, 1995.

[24] T.E. Deal and A.A. Kennedy, *Corporate Cultures*, Addison-Wesley, Reading, MA, 1982.

[25] G.K. Kanji and H. Yui, Total quality culture, *Total Quality Management* **8**(6) (1997), 417–428.

[26] G.K. Kanji, An innovative approach to make ISO 9000 standards more effective, *Total Quality Management* **9**(1) (1998), 67–78.

[27] J. Johnson, The culture clock: TQM and doing the right thing right at the right time, *Journal for Quality and Participation* **14**(6) (1991) 10–14.

[28] M. Maccoby, To create quality, first create the culture, *Research-Technology Management* **36**(5) (1993), 49–51.

[29] J. Sinclair and D. Collins, Towards a quality culture? *International Journal of Quality & Reliability Management* **11**(5) (1994), 19–29.

[30] G. Southern and A.U. Murray, Quality information management: The way to a better company culture, *Information Management & Computer Security* **2**(2) (1994), 32–35.

[31] D.E. McNabb and F.T. Sepic, Culture, climate, and total quality management: Measuring readiness for change, *Public Productivity & Management Review* **18**(4) (1995), 369–385.

[32] P.W. Bowen, The need for quality cultures, *Training for Quality* **4**(2) (1996), 14–18.

[33] B. Shirley, Total quality in ICS, *The TQM Magazine* **9**(1) (1997), 29–35.

[34] M.T. Hansen and M.S. Deimler, Cutting costs while improving morale with B2E management, *Sloan Management Review* **43**(1) (2001), 96–100.

[35] R.M. Kanter, Are you ready to lead the E-cultural revolution? *Inc* **22**(2) (2000), 43–44.

[36] R.M. Kanter, *Evolve! Succeeding in the Digital Culture of Tomorrow*, Harvard Business School Press, Boston, 2001.

[37] R.F. Pearse, Understanding organizational power and influence systems, *Compensation & Benefits Management* **16**(4) (2000), 28–38.

[38] R.M. Kanter, *Evolve! Succeeding in the Digital Culture of Tomorrow*, Harvard Business School Press, Boston, 2001.

[39] H. Preston and M. Allmand, Discovering the information professional: Organizational culture in a digital world, *Online Information Review* **9**(6) (2001), 388–395.

[40] R. Travers, E-culture, *CIO* **13**(25) (2000), 268–270.

[41] T. Myers, Creating an E-culture, http://www.ebizchronicle.com, 2001.

[42] E. Claver, J. Llopis, J.L. Gasco and M.R. Gonzalez, The strategic process of a cultural change to implement TQM: A case study, *Total Quality Management* **12**(4) (2000), 469–482.